JCB
THE JOURNAL OF CELL BIOLOGY
VOL. 182, NO. 1, JULY 14, 2008

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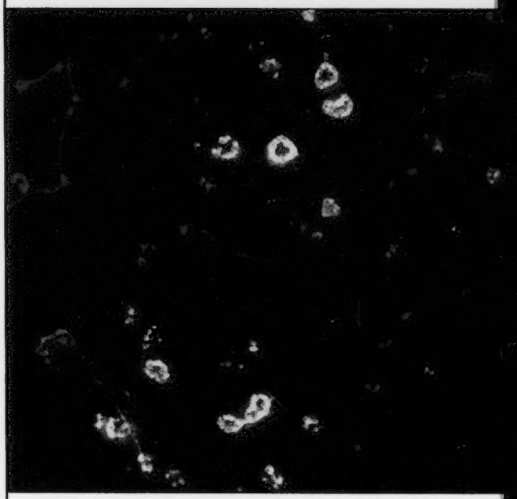

The phospholipid PtdIns(3,4)P2 (green) accumulates at focal adhesions and prompts podosome (rings) formation.
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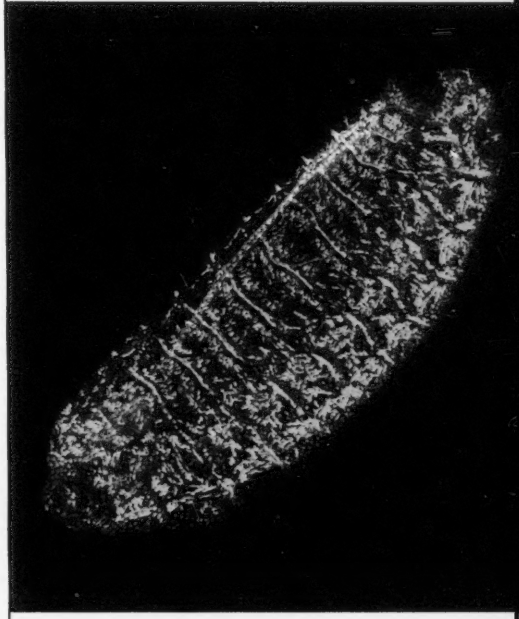

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Medioni et al. discover how cells work together to form tubes during morphogenesis of the fly heart.
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301 Nuf, a Rab11 effector, maintains cytokinetic furrow integrity by promoting local actin polymerization
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315 Slug is a direct Notch target required for initiation of cardiac cushion cellularization
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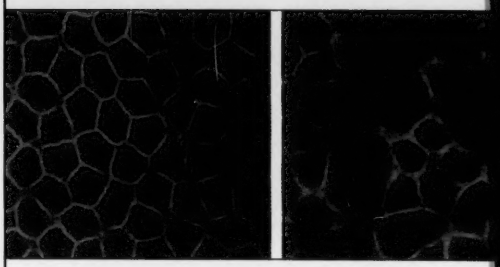

Nuf promotes local actin polymerization at the cleavage furrow. Without Nuf (right) the furrow fails and cells do not divide properly.
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- Egg P bodies protect maternal mRNA
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Protective P bodies (green), which shelter maternal mRNAs, are just one type of P body that appear during different stages of worm egg and embryo development.
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497 A Cdo–Bnip-2–Cdc42 signaling pathway regulates p38α/β MAPK activity and myogenic differentiation
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509 A cyclin D1/microRNA 17/20 regulatory feedback loop in control of breast cancer cell proliferation
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559 Maternal mRNAs are regulated by diverse P body–related mRNP granules during early *Caenorhabditis elegans* development
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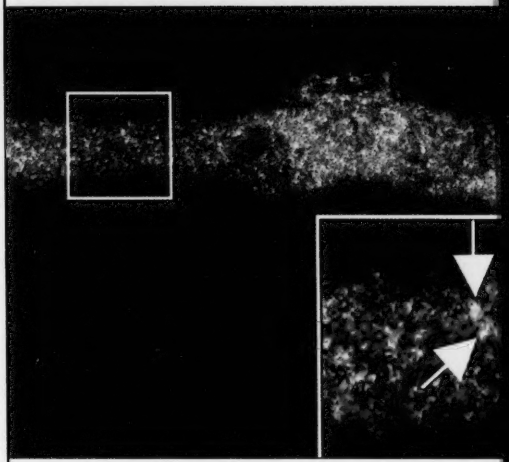
603 The Csk-binding protein PAG regulates PDGF-induced Src mitogenic signaling via GM1
Laurence Veracini, Valérie Simon, Véronique Richard, Burkhart Schraven, Vaclav Horejsi, Serge Roche, and Christine Benistant



Schwann cells start dividing in response to TGFβ, but epithelial cells stop. The difference is due to the protooncogene Ski (red). In Schwann cells (shown) it increases in the cytoplasm and appears to inactivate the tumor suppressor Rb (green). In epithelial cells, however, it gets degraded.
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641 Stress induces the assembly of RNA granules in the chloroplast of *Chlamydomonas reinhardtii*
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647 Phosphorylation of the Arp2/3 complex is necessary to nucleate actin filaments
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655 TGFβ induces SIK to negatively regulate type I receptor kinase signaling
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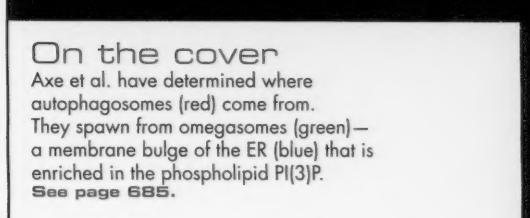

On the cover

Axe et al. have determined where autophagosomes (red) come from. They spawn from omegasomes (green)—a membrane bulge of the ER (blue) that is enriched in the phospholipid PI(3)P.
See page 685.

685 Autophagosome formation from membrane compartments enriched in phosphatidylinositol 3-phosphate and dynamically connected to the endoplasmic reticulum
Elizabeth L. Axe, Simon A. Walker, Maria Manifava, Priya Chandra, H. Llewelyn Roderick, Anja Habermann, Gareth Griffiths, and Nicholas T. Ktistakis

703 In vivo reconstitution of autophagy in *Saccharomyces cerevisiae*
Yang Cao, Heesun Cheong, Hui Song, and Daniel J. Klionsky

715 Poleward transport of Eg5 by dynein–dynactin in *Xenopus laevis* egg extract spindles
Marianne Uteng, Christian Hentrich, Kota Miura, Peter Bieling, and Thomas Surrey

727 Novel role of the muskelin–RanBP9 complex as a nucleocytoplasmic mediator of cell morphology regulation
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741 SopB promotes phosphatidylinositol 3-phosphate formation on *Salmonella* vacuoles by recruiting Rab5 and Vps34
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753 Mechanotransduction in an extracted cell model: Fyn drives stretch- and flow-elicited PECAM-1 phosphorylation
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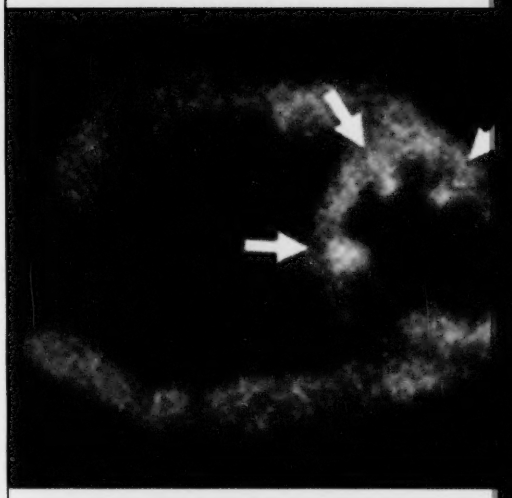
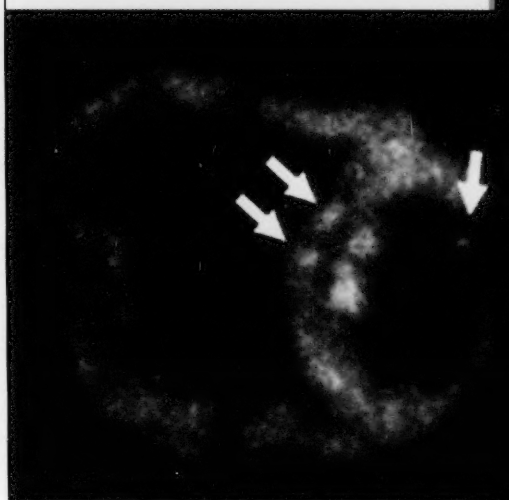
765 Single-molecule analysis of CD9 dynamics and partitioning reveals multiple modes of interaction in the tetraspanin web
Cedric Espenel, Emmanuel Margeat, Patrice Dosset, Cécile Arduise, Christian Le Grimellec, Catherine A. Royer, Claude Boucheix, Eric Rubinstein, and Pierre-Emmanuel Milhiet

777 uPAR promotes formation of the p130Cas–Crk complex to activate Rac through DOCK180
Harvey W. Smith, Pierfrancesco Marra, and Christopher J. Marshall

791 Structural basis for distinctive recognition of fibrinogen γC peptide by the platelet integrin $\alpha_{IIb}\beta_3$
Timothy A. Springer, Jianghai Zhu, and Tsan Xiao

801 Integrins control the positioning and proliferation of follicle stem cells in the *Drosophila* ovary
Alana M. O'Reilly, Hsiu-Hsiang Lee, and Michael A. Simon





Stress granules (arrows) don't just form in the cytoplasm and nucleus. They can also form in chloroplasts (circular structure), which have bacterial-like ribosomes and expression mechanisms. Uniacke and Zerges thus wonder whether stress granules are more wide spread in nature than currently realized.
See page 641.

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- Kick out the reticulons to close the envelope
- Better binding with a flick of the tail
- Vesicles roar, and don't collapse
- A weak signaler gets in close
- SRC1, central to the nuclear periphery

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- Bruce Alberts: Education, education, education

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837 ERK regulates Golgi and centrosome orientation towards the leading edge through GRASP65
Blaine Bisel, Yanzhuang Wang, Jen-Hsuan Wei, Yi Xiang, Danming Tang, Miguel Miron-Mendoza, Shin-ichiro Yoshimura, Nobuhiro Nakamura, and Joachim Seemann

845 Rab13 regulates membrane trafficking between TGN and recycling endosomes in polarized epithelial cells
Rita L. Nokes, Ian C. Fields, Ruth N. Collins, and Heike Fölsch

855 Receptor trafficking controls weak signal delivery: a strategy used by c-Met for STAT3 nuclear accumulation
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865 Caprin-2 enhances canonical Wnt signaling through regulating LRP5/6 phosphorylation
Yu Ding, Ying Xi, Ting Chen, Ji-yong Wang, Dong-lei Tao, Zhi-li Wu, Yi-ping Li, Chen Li, Rong Zeng, and Lin Li

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873 Separase cooperates with Zds1 and Zds2 to activate Cdc14 phosphatase in early anaphase
Ethel Queralt and Frank Uhlmann

885 Regulation of the endocycle/gene amplification switch by Notch and ecdysone signaling
Jianjun Sun, Laila Smith, Alexander Armento, and Wu-Min Deng

897 The inner nuclear membrane protein Src1 associates with subtelomeric genes and alters their regulated gene expression
Stefanie E. Grund, Tamás Fischer, Ghislain G. Cabal, Oreto Antúnez, José E. Pérez-Ortín, and Ed Hurt

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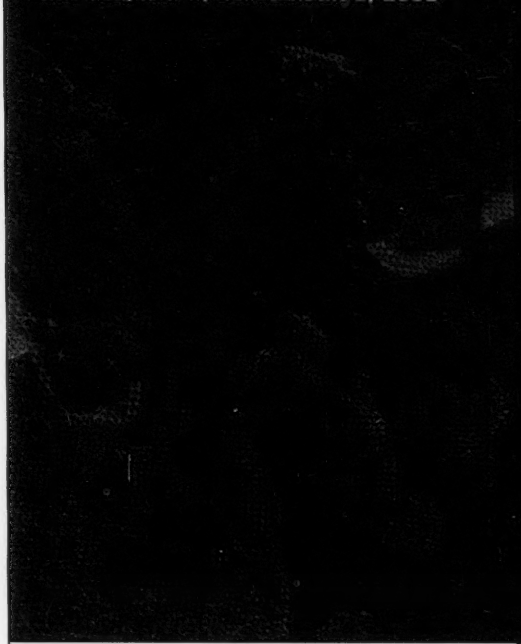

On the cover

ER tubules (green) bind chromatin (red) at telophase. The tubules then flatten into sheets that form the nuclear envelope thanks to the removal of membrane-bending proteins called reticulons.
See page 911.

911 Reshaping of the endoplasmic reticulum limits the rate for nuclear envelope formation
Daniel J. Anderson and Martin W. Hetzer

925 To flip or not to flip: lipid–protein charge interactions are a determinant of final membrane protein topology
Mikhail Bogdanov, Jun Xie, Phil Heacock, and William Dowhan

937 Cardiolipin defines the interactome of the major ADP/ATP carrier protein of the mitochondrial inner membrane
Steven M. Claypool, Yavuz Oktay, Pinmanee Boontheung, Joseph A. Loo, and Carla M. Koehler

951 MTOC translocation modulates IS formation and controls sustained T cell signaling
Noa B. Martín-Cófreces, Javier Robles-Valero, J. Román Cabrero, María Mittelbrunn, Mónica Gordón-Alonso, Ching-Hwa Sung, Balbino Alarcón, Jesús Vázquez, and Francisco Sánchez-Madrid

963 RanBPM regulates cell shape, arrangement, and capacity of the female germline stem cell niche in *Drosophila melanogaster*
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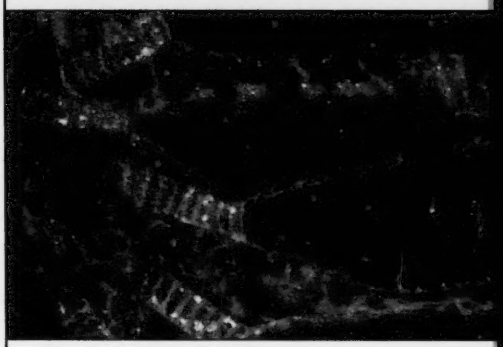
979 IGFBP-5 regulates muscle cell differentiation by binding to IGF-II and switching on the IGF-II auto-regulation loop
Hongxia Ren, Ping Yin, and Cunming Duan

993 TLR ligand–induced podosome disassembly in dendritic cells is ADAM17 dependent
Michele A. West, Alan R. Prescott, Kui Ming Chan, Zhongjun Zhou, Stefan Rose-John, Jürgen Scheller, and Colin Watts

1007 Inactivation of clathrin heavy chain inhibits synaptic recycling but allows bulk membrane uptake
Jaroslaw Kasprowicz, Sabine Kuenen, Katarzyna Miskiewicz, Ron L.P. Habets, Liesbet Smitz, and Patrik Verstreken

1017 The mouth of a dense-core vesicle opens and closes in a concerted action regulated by calcium and amphiphysin
Artur Llobet, Minnie Wu, and Leon Lagnado



In the fly ovary, the germinal stem cell niche is shaped by an isoform of RanBPM protein (green).
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1039 Consensus nomenclature for the human ArfGAP domain-containing proteins
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1045 Direct role of dynein motor in stable kinetochore-microtubule attachment, orientation, and alignment
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1055 Orientation and structure of the Ndc80 complex on the microtubule lattice
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1063 Lis1 and Ndel1 influence the timing of nuclear envelope breakdown in neural stem cells
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1073 Ryk cooperates with Frizzled 7 to promote Wnt11-mediated endocytosis and is essential for *Xenopus laevis* convergent extension movements
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1083 Association between active genes occurs at nuclear speckles and is modulated by chromatin environment
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1099 Regulation of Sli15/INCENP, kinetochore, and Cdc14 phosphatase functions by the ribosome biogenesis protein Utp7
Miri Jwa, Jae-hyun Kim, and Clarence S.M. Chan

Articles with related stories in the IN THIS ISSUE section have page numbers in RED; articles with COMMENTS have page numbers in BLUE.

On the cover

Laminin shapes both the pre-synaptic nerve terminal (nerve is blue and surrounding Schwann cells are green), and the post-synaptic muscle membrane (red) to form a tight interlocking neuromuscular junction.
See page 1201.

1113 Ero1L, a thiol oxidase, is required for Notch signaling through cysteine bridge formation of the Lin12-Notch repeats in *Drosophila melanogaster*
An-Chi Tien, Akhila Rajan, Karen L. Schulze, Hyung Don Ryoo, Melih Acar, Hermann Steller, and Hugo J. Bellen

1127 Effector caspase Dcp-1 and IAP protein Bruce regulate starvation-induced autophagy during *Drosophila melanogaster* oogenesis
Ying-Chen Claire Hou, Suganthi Chittaranjan, Sharon González Barbosa, Kimberly McCall, and Sharon M. Gorski

1141 Efficient termination of vacuolar Rab GTPase signaling requires coordinated action by a GAP and a protein kinase
Christopher L. Brett, Rachael L. Plemel, Braden T. Lobinger, Marissa Vignali, Stanley Fields, and Alexey J. Merz

1153 Regulation of caveolin-1 membrane trafficking by the Na/K-ATPase
Ting Cai, Haojie Wang, Yiliang Chen, Lijun Liu, William T Gunning, Luis Eduardo M. Quintas, and Zi-Jian Xie

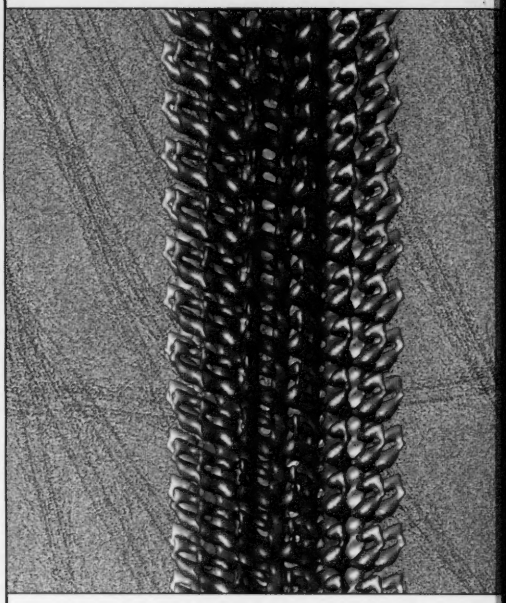
1171 Myosin II has distinct functions in PNS and CNS myelin sheath formation
Haibo Wang, Ambika Tewari, Steven Einheber, James L. Salzer, and Carmen V. Melendez-Vasquez

1185 NCAM induces CaMKIIα-mediated RPTPα phosphorylation to enhance its catalytic activity and neurite outgrowth
Vsevolod Bodrikov, Vladimir Sytnyk, Iryna Leshchyns'ka, Jeroen den Hertog, and Melitta Schachner

1201 Laminins promote postsynaptic maturation by an autocrine mechanism at the neuromuscular junction
Hiroshi Nishimune, Gregorio Valdez, George Jarad, Casey L. Moulson, Ulrich Müller, Jeffrey H. Miner, and Joshua R. Sanes

1217 EPB41L5 functions to post-transcriptionally regulate cadherin and integrin during epithelial–mesenchymal transition
Mariko Hirano, Shigeru Hashimoto, Shigenobu Yonemura, Hisataka Sabe, and Shinichi Aizawa

1231 The WAVE2 complex regulates T cell receptor signaling to integrins via Abl- and CrkL–C3G-mediated activation of Rap1
Jeffrey C. Nolz, Lucas P. Nacusi, Colin M. Segovis, Ricardo B. Medeiros, Jason S. Mitchell, Yoji Shimizu, and Daniel D. Billadeau



The Ndc80 protein complex is part of the binding site for kinetochores on spindle microtubules. But how does Ndc80 attach to microtubules? Using sophisticated microscopy techniques and image analyses, Wilson-Kubalek et al. have come up with a detailed structural answer.
See page 1055.